Experimental Brain Research

Volume 93 · 1993

Managing Editors P. Andersen, Oslo V.J. Wilson, New York

Board of Editors

Neurophysiology

P. Andersen
Institute of Neurophysiology
University of Oslo
P.B. 1104 Blindern
N-0317 Oslo
Norway

V.J. Wilson
The Rockefeller University
1230 York Avenue
New York, NY 10021, USA

Sensory Physiology

R. Shapley
New York University
Faculty of Arts and Science
Center for Neural Science
4 Washington Place, R. 912
New York, NY 10003, USA

M.M. Merzenich
W.M. Keck Center for
Integrative Neuroscience
496-U, UCSF
San Francisco,
CA 94143, USA

Neuropharmacology

G.L. Collingridge
University of Birmingham
Dept. of Pharmacology
The Medical School
Edgbaston
Birmingham B15 2TT, U.K.

Neuroanatomy and Developmental Neurobiology

L.J. Garey
Dept. of Anatomy
Charing Cross &
Westminster Medical School
Fulham Palace Road
London W6 8RF, U.K.

C. Sotelo
INSERM – U 106 –
Hôpital de la Salpetrière
47 Bd. de l'Hôpital
F-75651 Paris Cedex 13
France

Histochemistry and Neuroplasticity

A. Björklund
Dept. of Histology
University of Lund
Biskopsgatan 5
S-22362 Lund, Sweden

Behavioural Sciences and Neuropsychology

A.D. Milner
Psychological Laboratory
University of St. Andrews
St. Andrews, Fife KY16 9JU
U.K.

Board of Co-Editors

Neurophysiology

G.E. Alexander, Atlanta
J. Bureš, Praha
R.E. Burke, Bethesda
P. Buser, Paris
N. Dieringer, München
J.C. Eccles, Contra
E.E. Fetz, Seattle
A.P. Georgopoulos, Baltimore
C. Ghez, New York
J.M. Goldberg, Chicago
U. Heinemann, Köln
H. Hultborn, Copenhagen
M. Ito, Tokyo
P.G. Kostyuk, Kiev
G.E. Loeb, Kingston
H.D. Lux, München
J.C. Rothwell, London
P. Rudomin, México
R.F. Schmidt, Würzburg
R.H. Schor, Pittsburgh
H. Shimazu, Tokyo
J.F. Soechting, Minneapolis
T. Tsumoto, Osaka
S.P. Wise, Poolesville

Sensory Physiology

J.-M. Besson, Paris
B. Cohen, New York
H. Collewijn, Rotterdam
M. Cynader, Vancouver
U. Eysel, Bochum
E.P. Gardner, New York
M.E. Goldberg, Bethesda
T.M. Hamm, Phoenix
P. Hammond, Keele
K.-P. Hoffmann, Bochum
A. Iggo, Edinburgh
R. Klinke, Frankfurt/M.
L. Maffei, Pisa
P.B.C. Matthews, Oxford
G.A. Orban, Leuven
W. Singer, Frankfurt/M.
N. Suga, St. Louis

Neuropharmacology

Y. Ben-Ari, Paris
I. Creese, Newark
D.R. Curtis, Canberra
S.N. Davies, Aberdeen
P. Feltz, Strasbourg
T.P. Hicks, Greensboro
T. Hökfelt, Stockholm
L. Iversen, Hoddesdon
I. Kilpatrick, Bristol
M.G. Lacey, Birmingham
H. McLennan, Vancouver
M. Otsuka, Tokyo
A. Schousboe, Copenhagen
P. Seeman, Toronto
A.M. Sillito, London
W. Zieglgänsberger, München

Neuroanatomy and Developmental Neurobiology

J. Altman, West Lafayette
P. Brodal, Oslo
M. Frotscher, Freiburg
H. Holländer, München
G.M. Innocenti, Lausanne
E.G. Jones, Irvine
K. Kawamura, Tokyo
H. Kennedy, Lyon
E. Rinvik, Oslo
P. Rakic, New Haven
P. Somogyi, Oxford
J. Szentágothai, Budapest
J. Voogd, Rotterdam

Histochemistry and Neuroplasticity

A.J. Aguayo, Montreal
S.B. Dunnett, Cambridge
T.F. Freund, Budapest
L. Olson, Stockholm
J. Storm-Mathisen, Oslo
L.W. Swanson, San Diego

Behavioural Sciences and Neuropsychology

G. Berlucchi, Verona
A. Cowey, Oxford
P. Dean, Sheffield
J.M. Findlay, Durham
D. Gaffan, Oxford
V. Henn, Zürich
C.A. Marzi, Verona
M. Mishkin, Bethesda
J.P.N. Rawlins, Oxford
G. Rizzolatti, Parma
T.W. Robbins, Cambridge
E.T. Rolls, Oxford
P. Winn, St. Andrews

Administrative Office Manager: Mrs. G.M. Jaeckle,
MPI for biophysical Chemistry, Abt. 110, P.O. Box 2841,
W-3400 Göttingen, FRG, Tel. 551-201635, Telefax 551-201674,
Bitnet "Creutzfeldt MIKE.DNET. GWDG.DE"

Experimental Brain Research

Founded in 1966. Editorial Board: P. Dell, J.C. Eccles, D.M. MacKay, D. Ploog, J. Szentágothai, H. Waelsch
Springer, Berlin Heidelberg New York

Copyright

Submission of a manuscript implies: that the work described has not been published before (except in the form of an abstract or as part of a published lecture, review, or thesis); that it is not under consideration for publication elsewhere; that its publication has been approved by all coauthors, if any, as well as by the responsible authorities at the institute where the work has been carried out; that, if and when the manuscript is accepted for publication, the authors agree to automatic transfer of the copyright to the publisher; and that the manuscript will not be published elsewhere in any language without the consent of the copyright holders.
All articles published in this journal are protected by copyright, which covers the exclusive rights to reproduce and distribute the article (e.g. as offprints), as well as all translation rights. No material published in this journal may be reproduced photographically or stored on microfilm, in electronic data bases, video disks, etc., without first obtaining written permission from the publisher.

The use of general descriptive names, trade names, trademarks, etc., in this publication, even if not specifically identified, does not imply that these names are not protected by the relevant laws and regulations.

While the advice and information in this journal is believed to be true and accurate at the date of its going to press, neither the authors, the editors, nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, expressed or implied, with respect to the material contained herein.

Special regulations for photocopies in the USA

Photocopies may be made for personal or in-house use beyond the limitations stipulated under Section 107 or 108 of the U.S. Copyright Law, provided a fee is paid. All fees should be paid to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA, stating the ISSN 0014–4819, the volume, and the first and last page numbers of each article copied. The copyright owner's consent does not include copying for general distribution, promotion, new works, or resale. In these cases, specific written permission must first be obtained from the publisher.

Printers: Universitätsdruckerei H. Stürtz AG, W-8700 Würzburg
© by Springer-Verlag Berlin Heidelberg 1993

Contents

Abrahams VC → Donevan SD
Abrous DN → Annett LE
Acuña C → Alonso JM
Agnati LF → Ueki A
Albowitz B, Kuhnt U: Evoked changes of membrane potential in guinea pig sensory neocortical slices: an analysis with voltage-sensitive dyes and a fast optical recording method 213
Allain H → Bentué-Ferrer D
Alonso JM, Cudeiro J, Pérez R, Gonzalez F, Acuña C: Influence of layer V of area 18 of the cat visual cortex on responses of cells in layer V of area 17 to stimuli of high velocity 363
Altamimi U → Ueki A
Amblard B → Assaiante C
Andbjer B → Ueki A
Annett LE, Reading PJ, Tharumaratnam D, Abrous DN, Torres EM, Dunnett SB: Conditioning versus priming of dopaminergic grafts by amphetamine 46
Arbuthnott GW → Ingham CA
Armand J, Kably B: Critical timing of sensorimotor cortex lesions for the recovery of motor skills in the developing cat 73
Arrang JM → Yabe T
Assaiante C, Amblard B: Ontogenesis of head stabilization in space during locomotion in children: influence of visual cues 499

Ballantyne BT, Kukulka CG, Soderberg GL: Motor unit recruitment in human medial gastrocnemius muscle during combined knee flexion and plantarflexion isometric contractions 492
Bard C → Blouin J
Barnes CA → Green EJ
Barth TM → Boussaoud D
Batini C → Guy NTM
Bentué-Ferrer D, Decombe R, Saïag B, Allain H, Van den Driessche J: L-type voltage-dependent calcium channels do not modulate aminergic neurotransmitter release induced by transient global cerebral ischaemia: an in vivo microdialysis study in rat 288
Berg AV van den, Grind WA van de: Do component motions recombine into a moving plaid percept? 312
Berger W → Dietz V
Berthoz A → Olivier E
Bilt A van der → Lobbezoo F
Blouin J, Bard C, Teasdale N, Paillard J, Fleury M, Forget R, Lamarre Y: Reference systems for coding spatial information in normal subjects and a deafferented patient 324
Bolland BL → Kesner RP
Bosman F → Lobbezoo F
Boussaoud D, Barth TM, Wise SP: Effects of gaze on apparent visual responses of frontal cortex neurons 423
Bouvier G → Richer F
Brasil-Neto JP, Pascual-Leone A, Valls-Solé J, Cammarota A, Cohen LG, Hallett M: Postexercise depression of motor evoked potentials: a measure of central nervous system fatigue 181
Buchner R → Lobbezoo F

Cahusac PMB → Rolls ET
Cammarota A → Brasil-Neto JP
Chat M → Olivier E
Cleland CL, Getting PA: Respiratory-modulated and phrenic afferent-driven neurons in the cervical spinal cord (C4-C6) of the fluorocarbon-perfused guinea pig 307
Cohen LG → Brasil-Neto JP
Cooper BY → Glendinning DS
Cudeiro J → Alonso JM
Cudeiro J → Sillito AM

Dakis M → Kesner RP
Darling WG, Miller GF: Transformations between visual and kinesthetic coordinate systems in reaches to remembered object locations and orientations 534
Darlington CL → Sansom AJ
Decombe R → Bentué-Ferrer D
Dietz V, Trippel M, Ibrahim IK, Berger W: Human stance on a sinusoidally translating platform: balance control by feedforward and feedback mechanisms 352
Donevan SD, Abrahams VC: Cat trigeminal neurons innervated from the planum nasale: their medullary location and their responses to mechanical stimulation 66
Donga R → Taylor A
Dunnett SB → Annett LE
Dutia MB → Johnston AR

Ebendal T → Palmer MR
Ebert U → Koch M
Enroth-Cugell C → Troy JB
Eriksdotter-Nilsson M → Palmer MR
Erkelens CJ, Hulleman J: Selective adaptation of internally triggered saccades made to visual targets 157
Everitt BJ → Page KJ

Feigenbaum JD → Rolls ET
Finnman U-B → Ueki A
Fischer B → Weber H
Fleury M → Blouin J
Forget R → Blouin J
Fuxe K → Ueki A

Georgopoulos AP → Pellizzer G
Getting PA → Cleland CL
Gilchrist DPD → Sansom AJ
Glas HW van der → Lobbezoo F
Glendinning DS, Vierck CJ Jr, Cooper BY: The effect of fasciculus cuneatus lesions on finger positioning and long-latency reflexes in monkeys 104
Goldstein M → Ueki A
Gonzalez F → Alonso JM
Grantyn A → Olivier E
Green EJ, Barnes CA, McNaughton BL: Behavioral state dependence of homo- and hetero-synaptic modulation of dentate gyrus excitability 55
Grillner S → Schotland JL
Grind WA van de → Berg AV van den
Guy NTM, Batini C, Naquet R, Teillet M-A: Avian photogenic epilepsy and embryonic brain chimeras: neuronal activity of the adult prosencephalon and mesencephalon 196

Hallett M → Brasil-Neto JP
Heizmann CW → Kosaka T
Henry MA → Westrum LE
Henschen A → Palmer MR
Hietanen JK, Perrett DI: Motion sensitive cells in the macaque superior temporal polysensory area. I. Lack of response to the sight of the animal's own limb movement 117
Hökfelt T → Zhang X
Hood SH → Ingham CA
Hulleman J → Erkelens CJ
Hunziker W → Kosaka T

Ibrahim IK → Dietz V
Ingham CA, Hood SH, Maldegem B van, Weenink A, Arbuthnott GW: Morphological changes in the rat neostriatum after unilateral 6-hydroxydopamine injections into the nigrostriatal pathway 17

Janson AM → Ueki A
Johnston AR, Murnion B, McQueen DS, Dutia MB: Excitation and inhibition of rat medial vestibular nucleus neurones by 5-hydroxytryptamine 293
Jüch PJW → Taylor A

Kably B → Armand J
Kawano K → Shidara M
Keenan CJ → Sansom AJ
Kenyon R → Sansom AJ
Kesner RP, Bolland BL, Dakis M: Memory for spatial locations, motor responses, and objects: triple dissociation among the hippocampus, caudate nucleus, and extrastriate visual cortex 462
Khateb A → Serafin M
Koch M, Ebert U: Enhancement of the acoustic startle response by stimulation of an excitatory pathway from the central amygdala/basal nucleus of Meynert to the pontine reticular formation 231
Kohyama J → Takakusaki K
Kok P → Van den Berg RJ
Kosaka K → Kosaka T
Kosaka T, Kosaka K, Nakayama T, Hunziker W, Heizmann CW: Axons and axon terminals of cerebellar Purkinje cells and basket cells have higher levels of parvalbumin immunoreactivity than

somata and dendrites: quantitative analysis by immunogold labeling 483
Kuhnt U → Albowitz B
Kukulka CG → Ballantyne BT

Lamarre Y → Blouin J
Latanov A → Weber H
Li Y-Q, Takada M, Ohishi H, Shinonaga Y, Mizuno N: Collateral projections of trigeminal ganglion neurons to both the principal sensory trigeminal and the spinal trigeminal nuclei in the rat 205
Lobbezoo F, Glas HW van der, Buchner R, Bilt A van der, Bosman F: Gain and threshold of the jaw-jerk reflex in man during isometric contraction 129
Lobbezoo F, Glas HW van der, Buchner R, Bilt A van der, Bosman F: Jaw-jerk reflex activity in relation to various clenching tasks in man 139

Maldegem B van → Ingham CA
Martinez M → Richer F
Matsuyama K → Takakusaki K
McNaughton BL → Green EJ
McQueen DS → Johnston AR
Miller GF → Darling WG
Milner TE: Dependence of elbow viscoelastic behavior on speed and loading in voluntary movements 177
Minken AWH, Van Opstal AJ, Van Gisbergen JAM: Three-dimensional analysis of strongly curved saccades elicited by double-step stimuli 521
Miyashita Y → Rolls ET
Mizuno N → Li Y-Q
Mori S → Takakusaki K
Morley JW → Vickery RM
Mühlethaler M → Serafin M
Mühlethaler M → Yabe T
Murnion B → Johnston AR
Murphy PC → Sillito AM

Nakayama T → Kosaka T
Naquet R → Guy NTM
Ohishi H → Li Y-Q

Olivier E, Grantyn A, Chat M, Berthoz A: The control of slow orienting eye movements by tectoreticulospinal neurons in the cat: behavior, discharge patterns and underlying connections 435
Olson L → Palmer MR

Page KJ, Everitt BJ: Transsynaptic induction of c-*fos* in basal forebrain, diencephalic and midbrain neurons following AMPA-induced activation of the dorsal and ventral striatum 399
Page KJ, Saha A, Everitt BJ: Differential activation and survival of basal forebrain neurons following infusions of excitatory amino acids: studies with the immediate early gene c-*fos* 412
Paillard J → Blouin J
Palmer MR, Eriksdotter-Nilsson M, Henschen A, Ebendal T, Olson L: Nerve growth factor-induced excitation of selected neurons in the brain which is blocked by a low-affinity receptor antibody 226
Pascual-Leone A → Brasil-Neto JP
Paulus W → Probst Th
Pellizzer G, Georgopoulos AP: Common processing constraints for visuomotor and visual mental rotations 165
Pérez R → Alonso JM
Perrett DI → Hietanen JK
Piehl F → Zhang X
Pijpers JR → Savelsbergh GJP
Plendl H → Probst Th
Probst Th, Plendl H, Paulus W, Wist ER, Scherg M: Identification of the visual motion area (area V5) in the human brain by dipole source analysis 345

Rajendra S → Rogers LJ
Reading PJ → Annett LE
Richer F, Martinez M, Robert M, Bouvier G, Saint-Hilaire J-M: Stimulation of human somatosensory cortex: tactile and body displacement perceptions in medial regions 173
Robert M → Richer F
Rogers LJ, Rajendra S: Modulation of the development of light-initiated asymmetry in chick thalamofugal visual projections by oestradiol 89
Rolls ET, Cahusac PMB, Feigenbaum JD, Miyashita Y: Responses of single neurons in the hippocampus of the macaque related to recognition memory 299
Rolls ET → Wilson FAW
Rosén L → Ueki A
Rowe MJ → Vickery RM
Rustioni A → Valtschanoff JG

Saha A → Page KJ
Saint-Hilaire J-M → Richer F
Saïag B → Bentué-Ferrer D
Sansom AJ, Darlington CL, Smith PF, Gilchrist DPD, Keenan CJ, Kenyon R: Injections of calmidazolium chloride into the ipsilateral medial vestibular nucleus or fourth ventricle reduce spontaneous ocular nystagmus following unilateral labyrinthectomy in guinea pigs 271
Santvoord AAM van → Savelsbergh GJP
Savelsbergh GJP, Whiting HTA, Pijpers JR, Santvoord AAM van: The visual guidance of catching 148
Scherg M → Probst Th
Schotland JL, Grillner S: Effects of serotonin on fictive locomotion coordinated by a neural network deprived of NMDA receptor-mediated cellular properties 391
Serafin M, Khateb A, Vibert N, Vidal PP, Mühlethaler M: Medial vestibular nucleus in the guinea-pig: histaminergic receptors. I. An in vitro study 242
Serafin M → Yabe T
Shidara M, Kawano K: Role of Purkinje cells in the ventral paraflocculus in short-latency ocular following responses 185
Shinonaga Y → Li Y-Q
Sillito AM, Cudeiro J, Murphy PC: Orientation sensitive elements in the corticofugal influence on centre-surround interactions in the dorsal lateral geniculate nucleus 6
Skrandies W: Monocular and binocular neuronal activity in human visual cortex revealed by electrical brain activity mapping 516
Smith PF → Sansom AJ
Soderberg GL → Ballantyne BT
Stewart M: Disinhibition of hippocampal pyramidal cells during the transition into theta rhythm 1

Takada M → Li Y-Q
Takakusaki K, Kohyama J, Matsuyama K, Mori S: Synaptic mechanisms acting on lumbar motoneurons during postural augmentation induced by serotonin injection into the rostral pontine reticular formation in decerebrate cats 471
Taylor A, Donga R, Jüch PJW: Fusimotor effects of midbrain stimulation on jaw muscle spindles of the anaesthetized cat 37
Teasdale N → Blouin J
Teillet M-A → Guy NTM
Tharumaratnam D → Annett LE
Torres EM → Annett LE
Trippel M → Dietz V
Troy JB, Enroth-Cugell C: X and Y ganglion cells inform the cat's brain about contrast in the retinal image 383

Ueki A, Rosén L, Andbjer B, Finnman U-B, Altamimi U, Janson AM, Goldstein M, Agnati LF, Fuxe K: The vigilance-promoting drug modafinil counteracts the reduction of tyrosine hydroxylase immunoreactivity and of dopamine stores in nigrostriatal dopamine neurons in the male rat after a partial transection of the dopamine pathway 259

Valls-Solé J → Brasil-Neto JP
Valtschanoff JG, Weinberg RJ, Rustioni A: Amino acid immunoreactivity in corticospinal terminals 95
Van den Berg RJ, Kok P, Voskuyl RA: Valproate and sodium currents in cultured hippocampal neurons 279
Van den Driessche J → Bentué-Ferrer D
Van Gisbergen JAM → Minken AWH
Van Opstal AJ → Minken AWH
Verge VMK → Zhang X
Vibert N → Serafin M
Vibert N → Yabe T
Vickery RM, Morley JW, Rowe MJ: The role of single touch domes in tactile perception 332
Vidal PP → Serafin M
Vidal PP → Yabe T
Vierck CJ Jr → Glendinning DS
Voskuyl RA → Van den Berg RJ

Waele C de → Yabe T
Weber H, Latanov A, Fischer B: Context dependent amplitude modulations of express and regular saccades in man and monkey 335

Weenink A → Ingham CA
Weinberg RJ → Valtschanoff JG
Westrum LE, Henry MA: Unilateral retrogasserian rhizotomy causes contralateral degeneration in spinal trigeminal nuclei of cats: an ultrastructural study 28
Whiting HTA → Savelsbergh GJP
Wiesenfeld-Hallin Z → Zhang X
Wilson FAW, Rolls ET: The effects of stimulus novelty and familiarity on neuronal activity in the amygdala of monkeys performing recognition memory tasks 367
Wise SP → Boussaoud D
Wist ER → Probst Th

Yabe T, Waele C de, Serafin M, Vibert N, Arrang JM, Mühlethaler M, Vidal PP: Medial vestibular nucleus in the guinea-pig: histaminergic receptors. II. An in vivo study 249

Zhang X, Verge VMK, Wiesenfeld-Hallin Z, Piehl F, Hökfelt T: Expression of neuropeptides and neuropeptide mRNAs in spinal cord after axotomy in the rat, with special reference to motoneurons and galanin 450
Zimmer J → Sørensen JC